a detector adjacent the second end for producing electrical power when impinged upon by the transmitted light;

a signal generator adjacent the second end powered by the electrical power from the detector, the signal generator transmitting optical signals through the optical channel in response to input from a remote isolated circuit, the input being generated by a user of the remote isolated circuit; and

a sensor adjacent the first end for producing electrical signals in response to the optical signals.

2. (Amended) The device of claim 1 wherein the optical channel includes a fiber optic filament.

3. (Amended) The device of claim 1 further comprising a controller coupled to the light source and the sensor, the controller causing a task to be performed in response to receipt of the optical signals.

4. (Amended) The device of claim 1 further comprising a lens adjacent the second end of the optical channel, the lens refracting both the optical signals and the light.

5. (Amended) The device of claim 1 wherein the detector is an opto-electrical detector having a photovoltaic cell.

6. (Amended) The device of claim 1 wherein the detector includes an array of photonic devices.

7. (Amended) The device of claim 6 wherein the photonic devices are photovoltaic cells.

8. (Amended) The device of claim 7 further comprising a lens adjacent the second end of the optical channel, the lens refracting both the optical signals and the transmitted light.

9. (Amended) The device of claim 3 wherein the controller is further coupled to the signal generator, the controller inducing the light source to generate light in pulses having an on time and an off time and inducing the signal generator to generate optical signals during the off time of the light.

10. (Amended) The device of claim 9 further comprising an electrical storage device electrically coupled to the detector.

11. (Amended) The device of claim 1 wherein the intensity of the light source and the sensitivity of the d tector are sufficient to satisfy the power needs of the remote isolated circuit and the signal generator.

12. (Amended) The device of claim 1 wherein the light source generates light in a bandwidth centered about a first frequency, the detector is sensitive in a bandwidth including the first frequency, the signal generator gen rating optical signals in a bandwidth centered about a second frequency, and the sensor being sensitive in a band width including the second frequency.

al cont.

13. (Amended) The device of claim 12 wherein the light source generates monochromatic light.

14. (Amended) The device of claim 13 wherein the sensor is not sensitive to the monochromatic light.

15. (Amended) The device of claim 12 wherein the sensor is not sensitive to light in the bandwidth centered about the first frequency.

16. (Amended) The device of claim 12 wherein the light source is a laser.

17. (Amended) The device of claim 16 wherein the laser is a semiconductor laser.

18. (Amended) The device of claim 16 wherein the signal generator includes a light emitting diode.

19. (Amended) The device of claim 12 wherein the light source has a narrow bandwidth.

20. (Amended) An opto-electric device comprising

a first circuit including a first light source, the first light source periodically changing between an on state and an off state;

a second circuit including a second light source and a photovoltaic cell to provide energy to at least a portion of the second circuit; and

a first optical channel optically coupled to the first and second circuits, light from the first light source being transmitted to the photovoltaic cell over the first optical channel, and light from the second light source being received by the first circuit when the first light source is in the off state.

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22. (Amended) The device of claim 20, wherein light from the second light source provides feedback to the first circuit regarding a condition in the second circuit.

23. (Amended) The device of claim 20, wherein the second light source has an on state and an off state and the first circuit includes a detector configured to detect the state of the second light source when the first light source is

in the off state.

24. (Amended) The device of claim 20, wherein light from the first light source has a higher intensity than the light from the second light source.

25. (Amended) The device of claim 20, further comprising a storage device, the photovoltaic cell providing energy to the storage device.

28. (Amended) The device of claim 20, further comprising a lens positioned adjacent an end of the first optical channel so that light from the first light source passes through the lens prior to reaching the photovoltaic cell.

31. (Amended) The device of claim 20, wherein the first optical channel includes a single fiber optic strand.

32. (Amended) The device of claim 20, wherein the first optical channel includes plural fiber optic strands.

33. (Amended) An opto-electric device, comprising:

a first circuit including a first light source;

a second circuit including a second light source and a photovoltaic cell to provide energy to at least a portion of the second circuit;

a first optical channel optically coupled to the first and second circuits, light from the first light source being transmitted to the photovoltaic cell over the first optical channel; and

a second optical channel optically coupled to the first and second circuits, light from the second light source being transmitted over the second optical channel.

35. (Amended) The device of claim 33, wherein light from the second light source provides feedback to the first circuit regarding a condition in the second circuit.

53. (Amended) The device of claim 52, wherein the first optical channel further comprises an isolation layer interposed between the first and second regions, the isolation layer inhibiting optical communication between the first and second regions.

55. (Amended) The device of claim 53, wherein the isolation layer has an impedance mismatch with the first and second regions to inhibit optical communication between the first and second regions.

56. (Amended) The device of claim 52, wherein light from the second light source provides feedback to the first circuit regarding a condition in the

second circuit.

a7 cont.

57. (Amended) The device of claim 52, wherein the second circuit further comprises a storage device, the photovoltaic cell providing energy to the storage device.

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a8 ~~60.~~ (Amended) A method of electrically isolating a remote circuit from a controller, the method comprising the steps of:

transmitting a first light signal;

converting the transmitted first light signal to electrical power only;

powering the remote circuit with the electrical power;

converting an electrical output signal from the remote circuit to a second light signal;

transmitting the second light signal;

converting the transmitted second light signal to an electrical input signal for the controller to cause the controller to perform a task corresponding to the remote circuit electrical output signal.

Sub B2

21 ~~61.~~ (Amended) The method of claim ~~60~~ 20, wherein power is generated by the first light signal impinging a photovoltaic cell.

24 ~~64.~~ (Amended) The method of claim ~~63~~ 23, wherein the step of

a9 communicating the first and second light signals in half-duplex mode comprises the steps of:

communicating the first light signal according to a duty cycle having an on state and an off state; and

communicating the second light signal during the off state of the duty cycle.

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26 ~~66.~~ (Amended) The method of claim ~~65~~, wherein the step of

a10 communicating the first and second light signals in full-duplex mode comprises the steps of:

selecting a first frequency for the first light source;

selecting a second frequency for the second light source, the second frequency being different from the first frequency;

providing a photovoltaic cell responsive to the first frequency; and

providing an opto-electrical sensor responsive to the second frequency.

Sub B3

27 ~~67.~~ (Amended) The method of claim ~~60~~ 20, wherein th first light signal is transmitted over a first optical channel and the second light signal is transmitted

over a second optical channel.

28 68. (Amended) The method of claim 67, wherein the first and second light signals are transmitted in a full-duplex mode.

29 69. (Amended) The method of claim 68, further comprising the step of optically shielding the first and second optical channels to inhibit optical communication between the first and second optical channels.

Please add new claims 70-73 as follows:

70. The device of claim 20 wherein the first optical channel is a fiber optic line.

30 71. An optical isolation device for isolating a user of a remote circuit for controlling equipment in a point of care environment from a circuit for powering the equipment, the device comprising:

an optical channel;

a light source for transmitting light in a first direction through the channel;

a detector for producing power in response to the transmitted light;

a signal generator powered by the power from the detector, the signal generator transmitting optical signals in a second direction through the channel in response to user-generated input signals from the remote circuit; and

a sensor for producing electrical signals for controlling the equipment in response to the transmitted optical signals.

31 72. An optical isolation device, comprising:

an optical channel;

a light source for transmitting light in a first direction through the channel;

a detector for producing power in response to the transmitted light;

an optical signal generator powered by the power from the detector and coupled to an electrical signal generator included in a remote isolated circuit, the optical signal generator transmitting optical signals in a second direction through the channel in response to input from the electrical signal generator; and

a sensor for producing electrical signals in r sponse to the transmitted

optical signals.

32 73. An optically isolated control system, including:

a remote circuit for providing an input signal;

source circuit including a power source, a controller, and an actuator controlled by the controller;

an isolation device for optically isolating the remote circuit from the source circuit, the isolation device including

an optical channel,

a light source powered by the power source for transmitting light through the channel,

a detector for converting the transmitted light to electrical power for powering the remote circuit,

an optical signal generator, powered by the electrical power, for converting the input signal from the remote circuit to an optical signal, the optical signal generator transmitting the optical signal through the channel, and

a sensor for converting the transmitted optical signal to an electrical signal;

wherein the source circuit controller responds to the electrical signal by causing the actuator to perform a task corresponding to the input signal from the remote circuit.

REMARKS

Applicant's attorney appreciates the courtesies extended by Examiner Thomas and Examiner Kim during the interview held June 12, 2002. Further to that interview, Applicant hereby submits the above amendments which are identical to the proposed amendments faxed on June 10, 2002 and discussed during the interview. Applicant requests formal entry of the above amendments to all of the claims.

Responsive to the restriction requirement discussed in the interview, Applicant hereby elects to pursue claims 1-19, 60-69, and 71-73. The non-elected claims are 20-59 and 70.

Originally submitted claims 1-69 stand rejected under 35 U.S.C. § 103 and/or § 102 based on U.S. Pat nt No. 5,664,035 to Tsuji et al ("Tsuji"). As indicated